Apr 5th, 2:00 PM - 2:15 PM

Telemetry tracking of salmon smolt migrations through the Salish Sea: examining behaviour, survival and causes of mortality

Scott Hinch
The Univ. of British Columbia, Canada, scott.hinch@ubc.ca

Nathan Furey
The Univ. of British Columbia, Canada, n.b.furey@gmail.com

Christine Stevenson
The Univ. of British Columbia, Canada, c.stevenson847@gmail.com

Steve Johnstone
The Univ. of British Columbia, Canada, stephendanjohnston@gmail.com

Steve Healy
The Univ. of British Columbia, Canada, steve.healy2@gmail.com

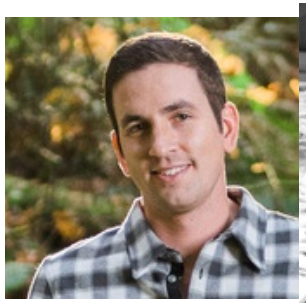
See next page for additional authors

Speaker

Scott Hinch, Nathan Furey, Christine Stevenson, Steve Johnstone, Steve Healy, David Welch, Erin Rechisky, Aswea Porter, and Kristi Miller

The Team! (Coauthors)

Students



Steve Healy

Christine Stevenston

Steve Johnston

Corporations and First Nations

Xeni Gwet'in
Tsilhqot'in People of Nemiah

KINTAMA

Erin Rechisky

David Welch

Scott Hinch

Government

Aswea Porter

University Academics

Brian Hunt

Eduardo Martins

Kristi Miller

SALISH SEA
MARINE SURVIVAL PROJECT

fsbi
An International Society for Fish Biology

UBC

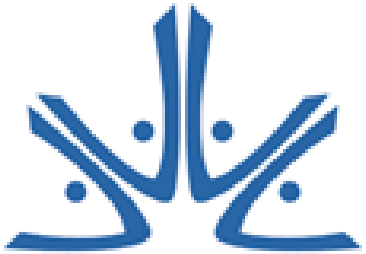
OCEAN
TRACKING NETWORK

HABITAT
CONSERVATION TRUST
FOUNDATION

Mitacs
Accelerate

NSERC
CRSNG

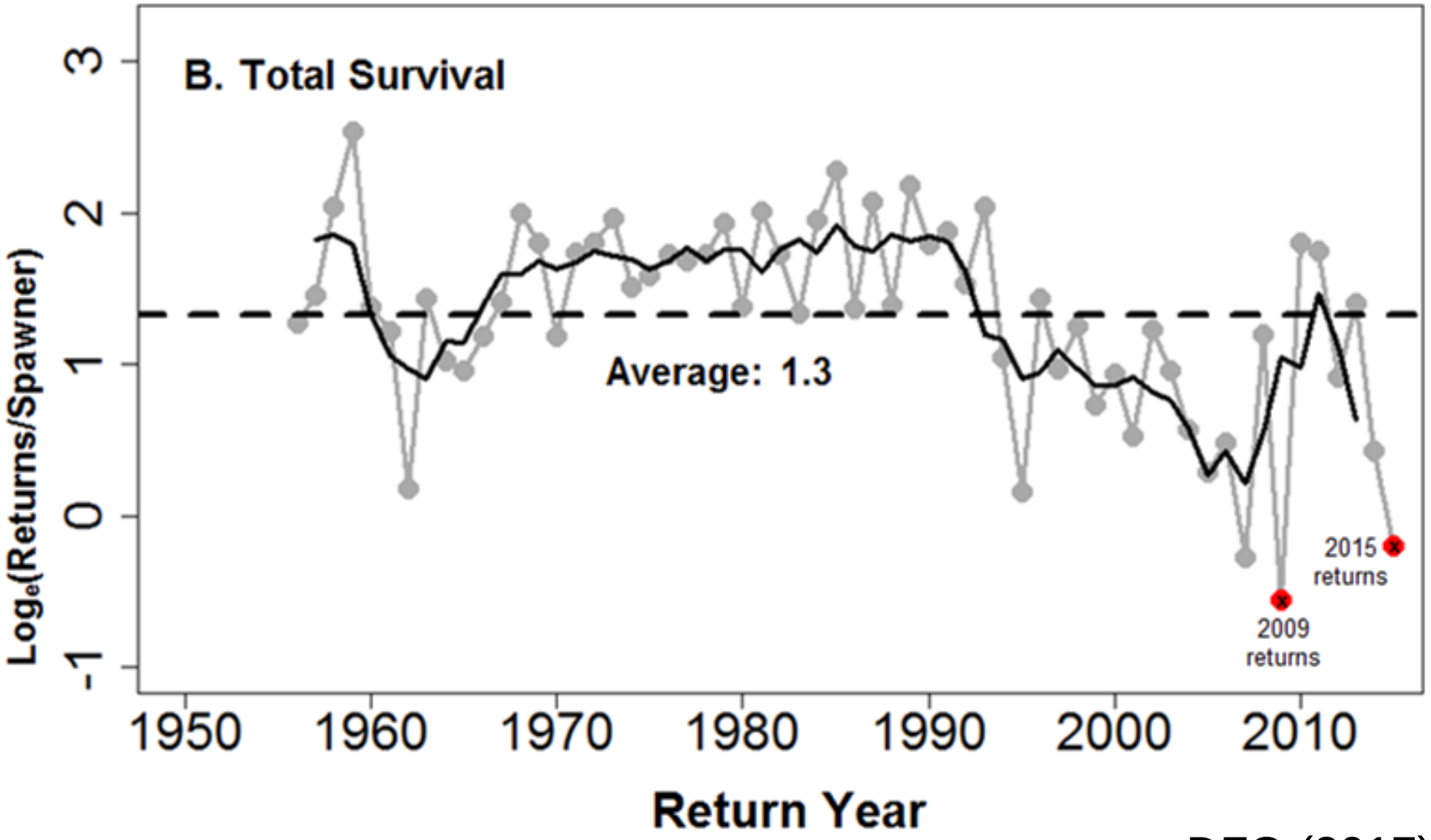
Bourses d'études supérieures du Canada
Vanier
Canada Graduate Scholarships



PACIFIC
SALMON
FOUNDATION

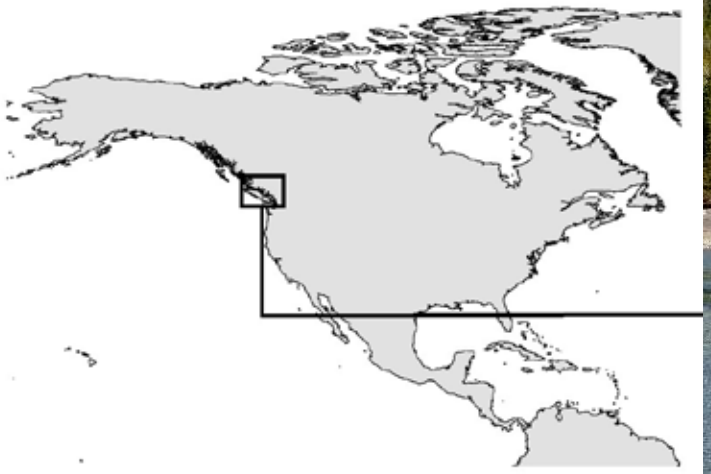
AFS

Sockeye are in decline – smolts important?

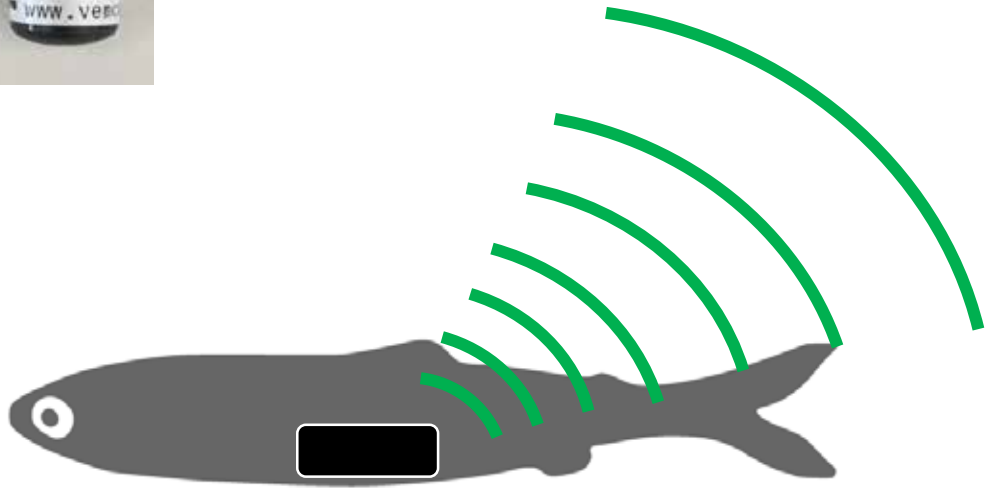


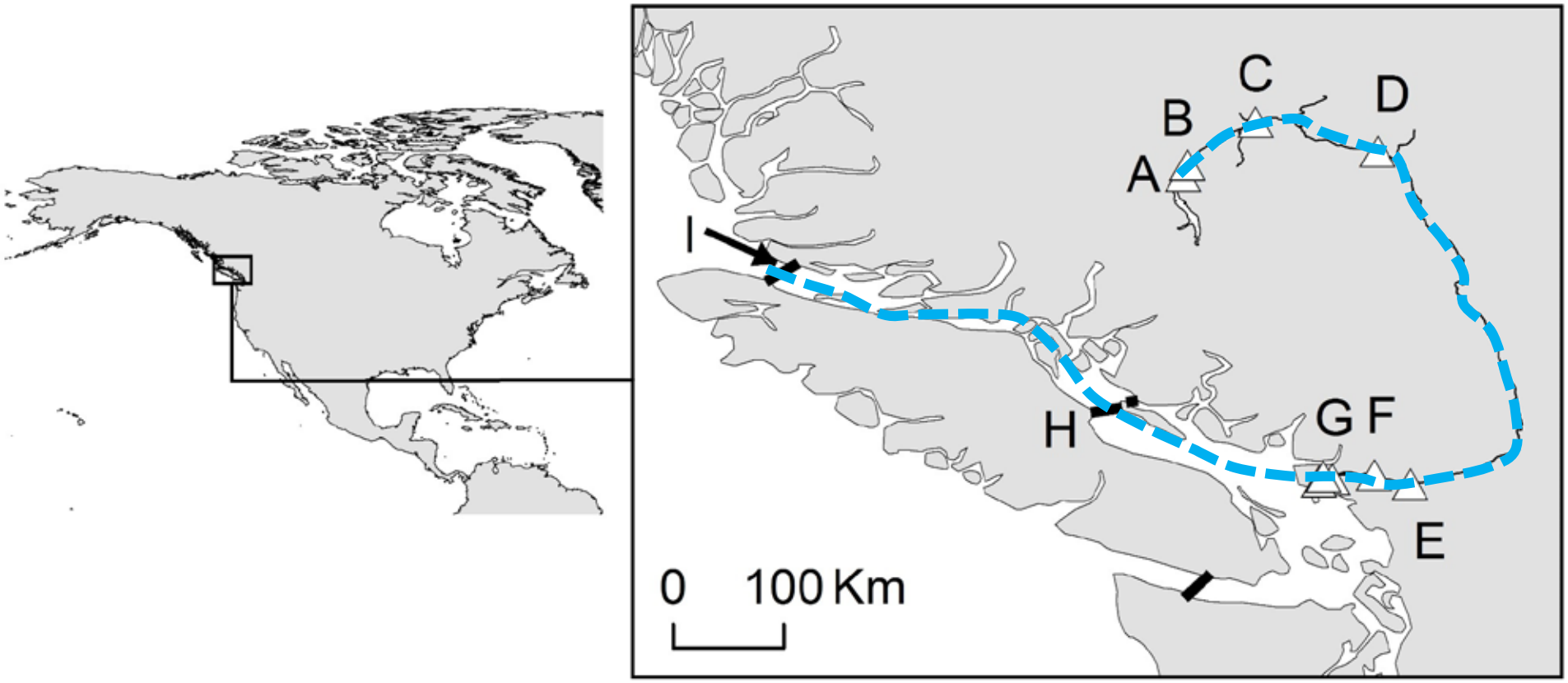
DFO (2017)

Chilko Lake sockeye salmon smolts



Acoustic telemetry

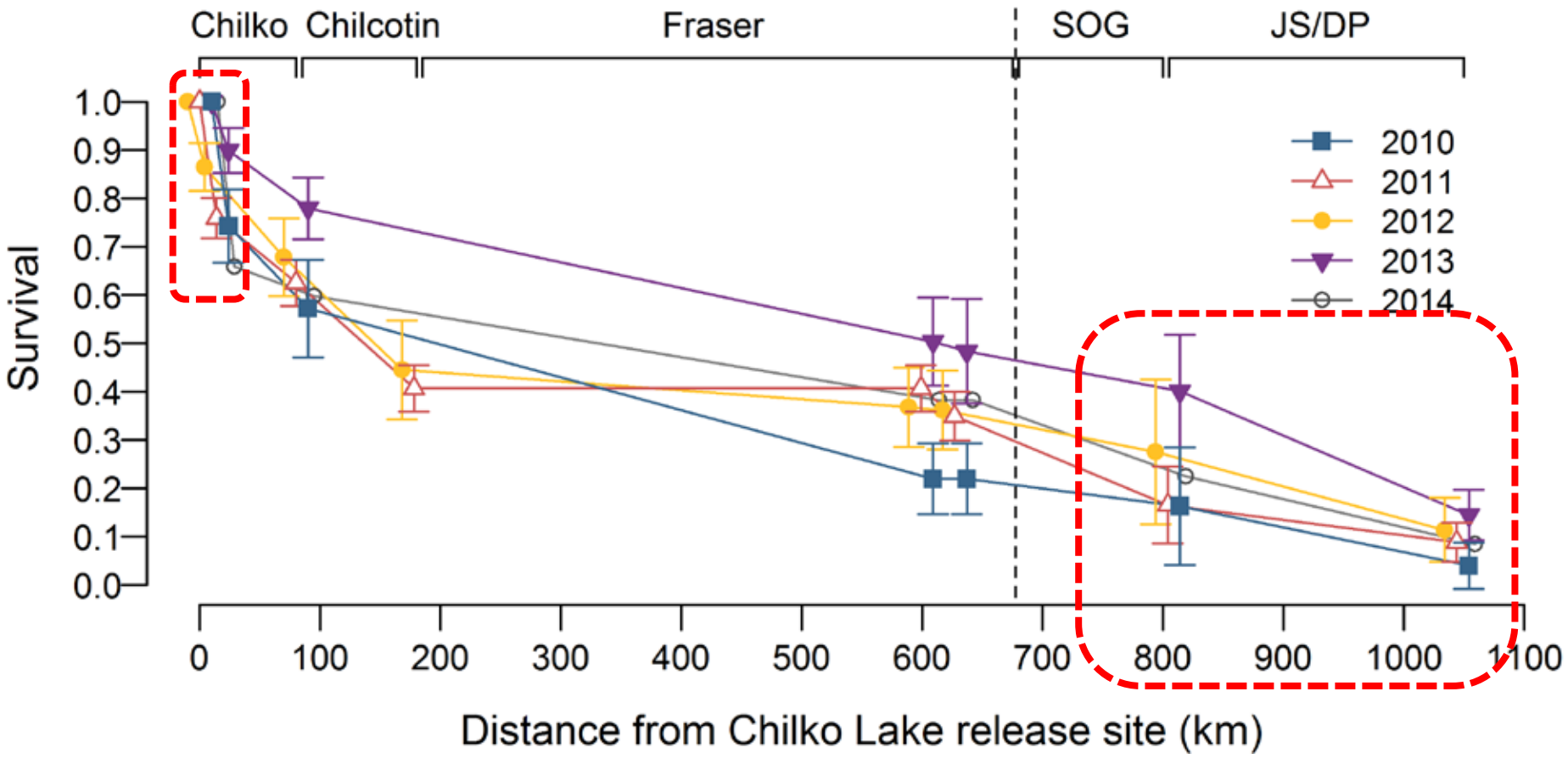




Clark et al. 2016. Ecological Applications

Rechisky et al. Accepted. Canadian Journal of Fisheries and Aquatic Sciences

Survival is low in two landscapes



Rechisky et al. Accepted. Canadian Journal of Fisheries and Aquatic Sciences


Why is survival low here?


Bull trout
(*Salvelinus confluentus*)

Journal of Animal Ecology

British Ecological Society

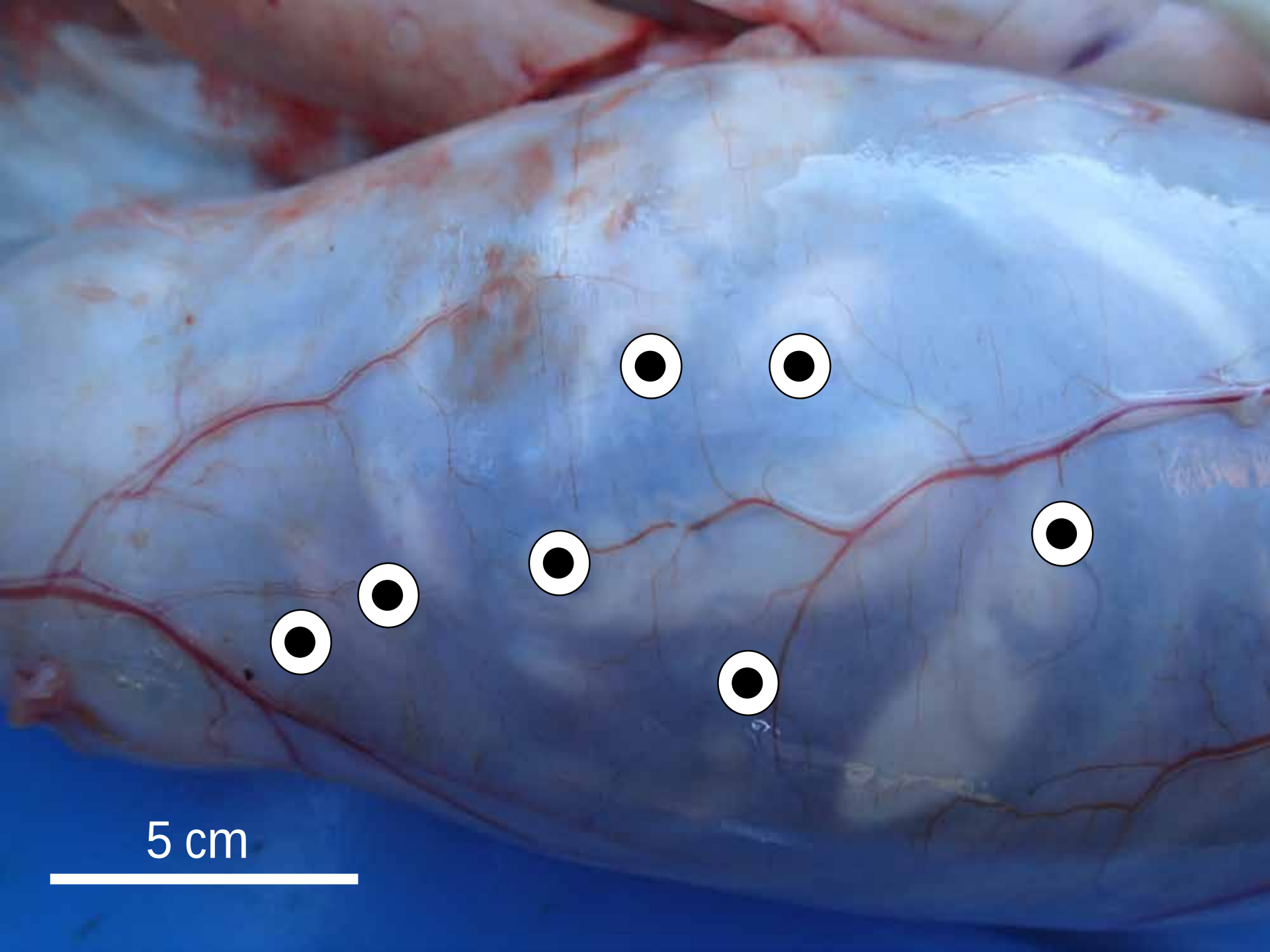
Journal of Animal Ecology 2016, **85**, 1307–1317 doi: 10.1111/1365-2656.12565

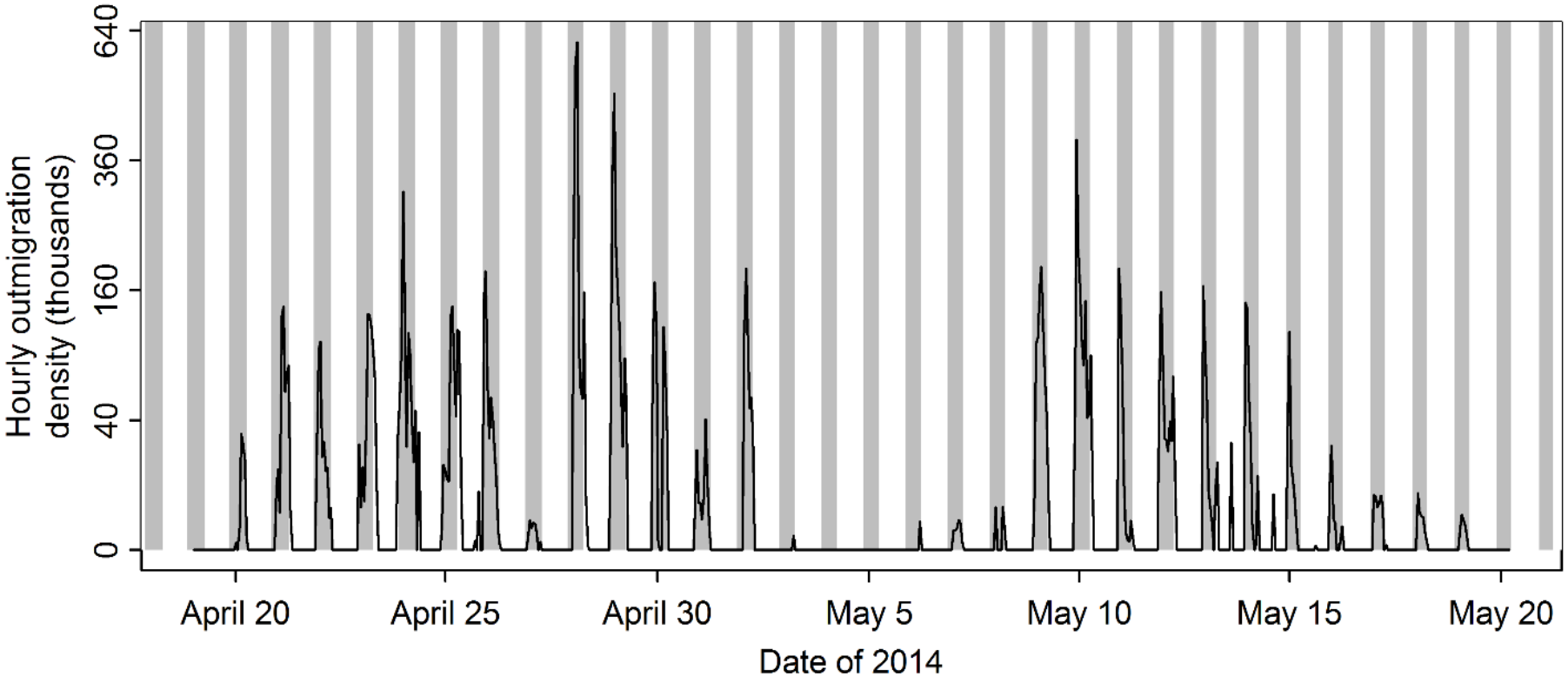
Piscivorous fish exhibit temperature-influenced binge feeding during an annual prey pulse

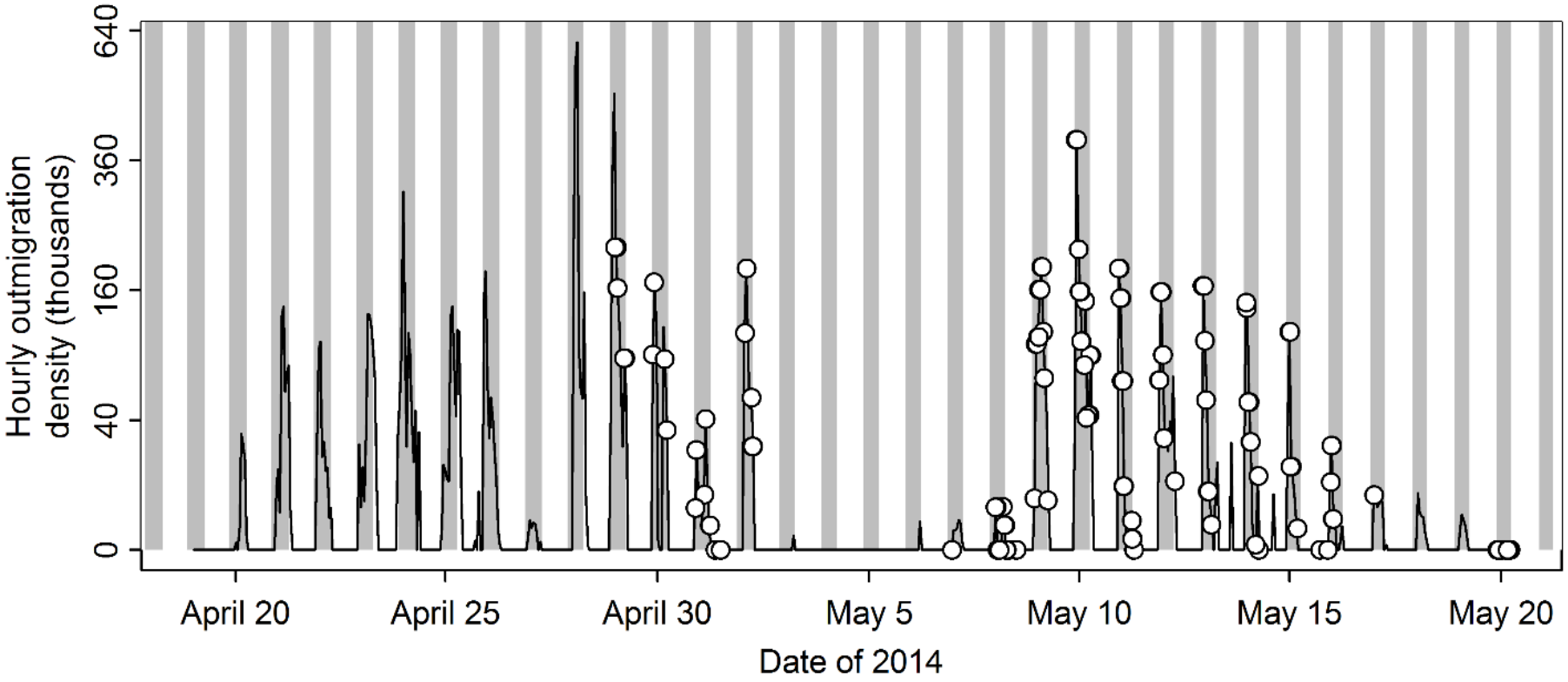
Nathan B. Furey[1]*, Scott G. Hinch[1], Matthew G. Mesa[2] and David A. Beauchamp[3]

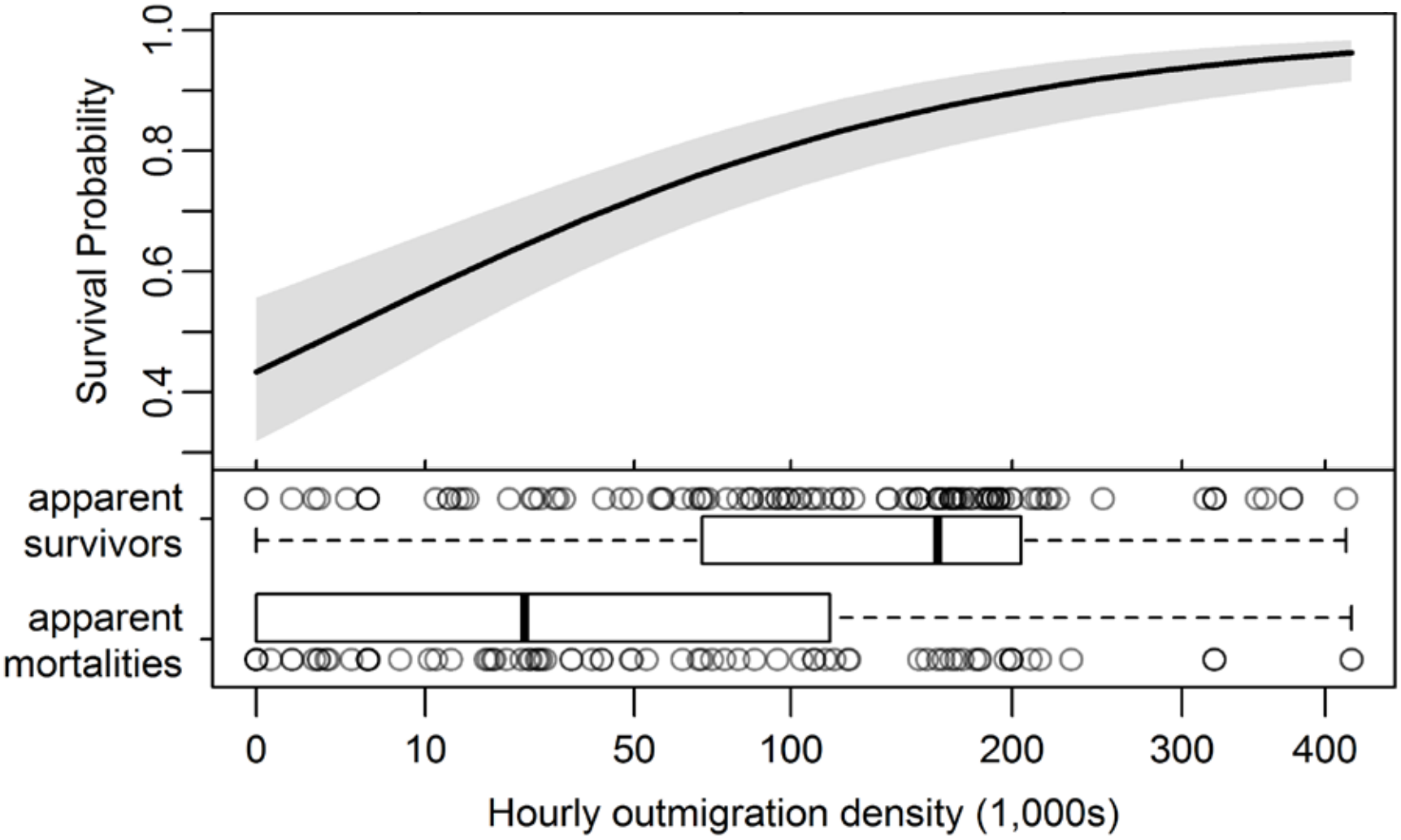
Extensive feeding on sockeye salmon *Oncorhynchus nerka* smolts by bull trout *Salvelinus confluentus* during initial outmigration into a small, unregulated and inland British Columbia river

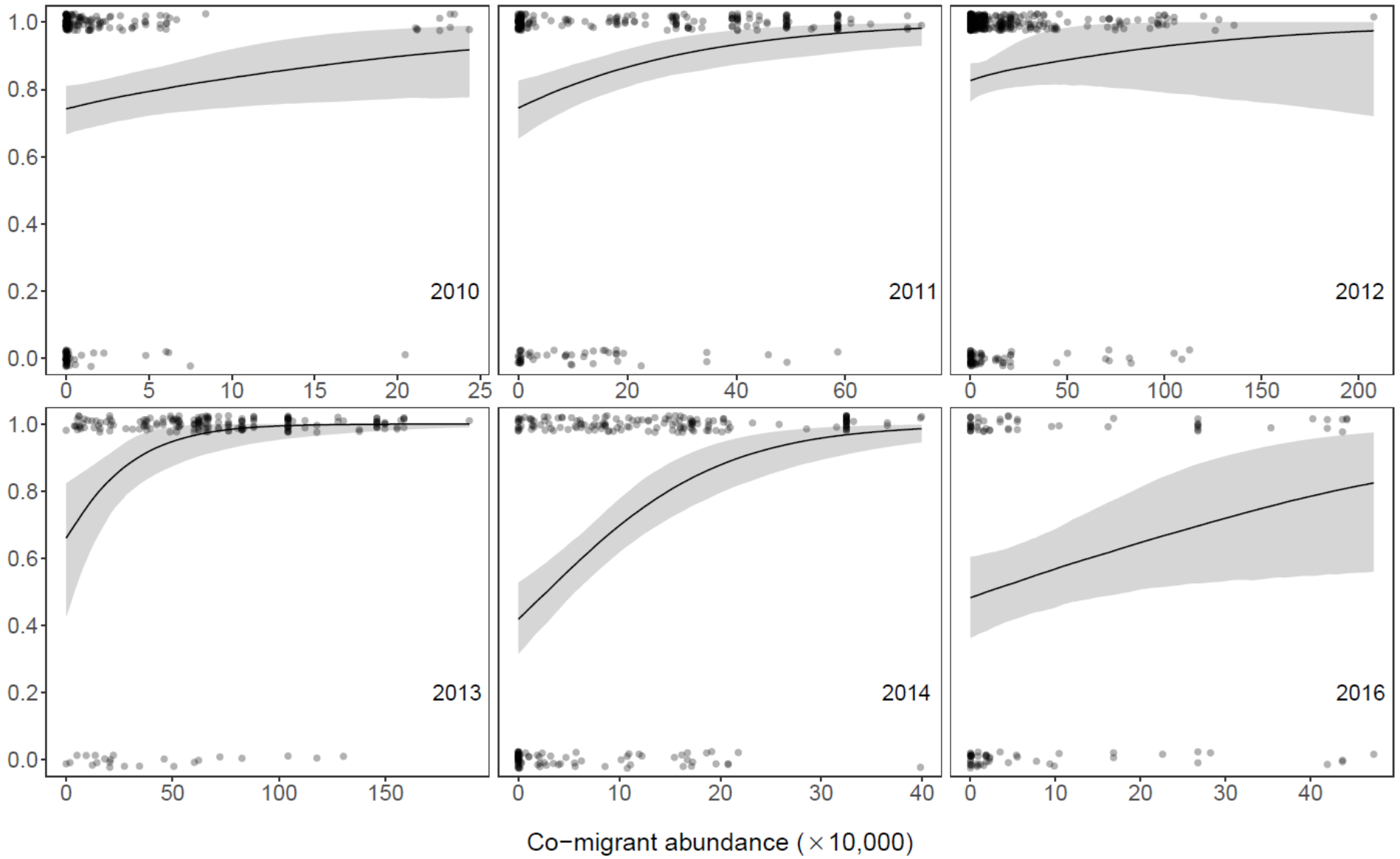
N. B. Furey*†, S. G. Hinch*, A. G. Lotto* and D. A. Beauchamp‡


5 cm

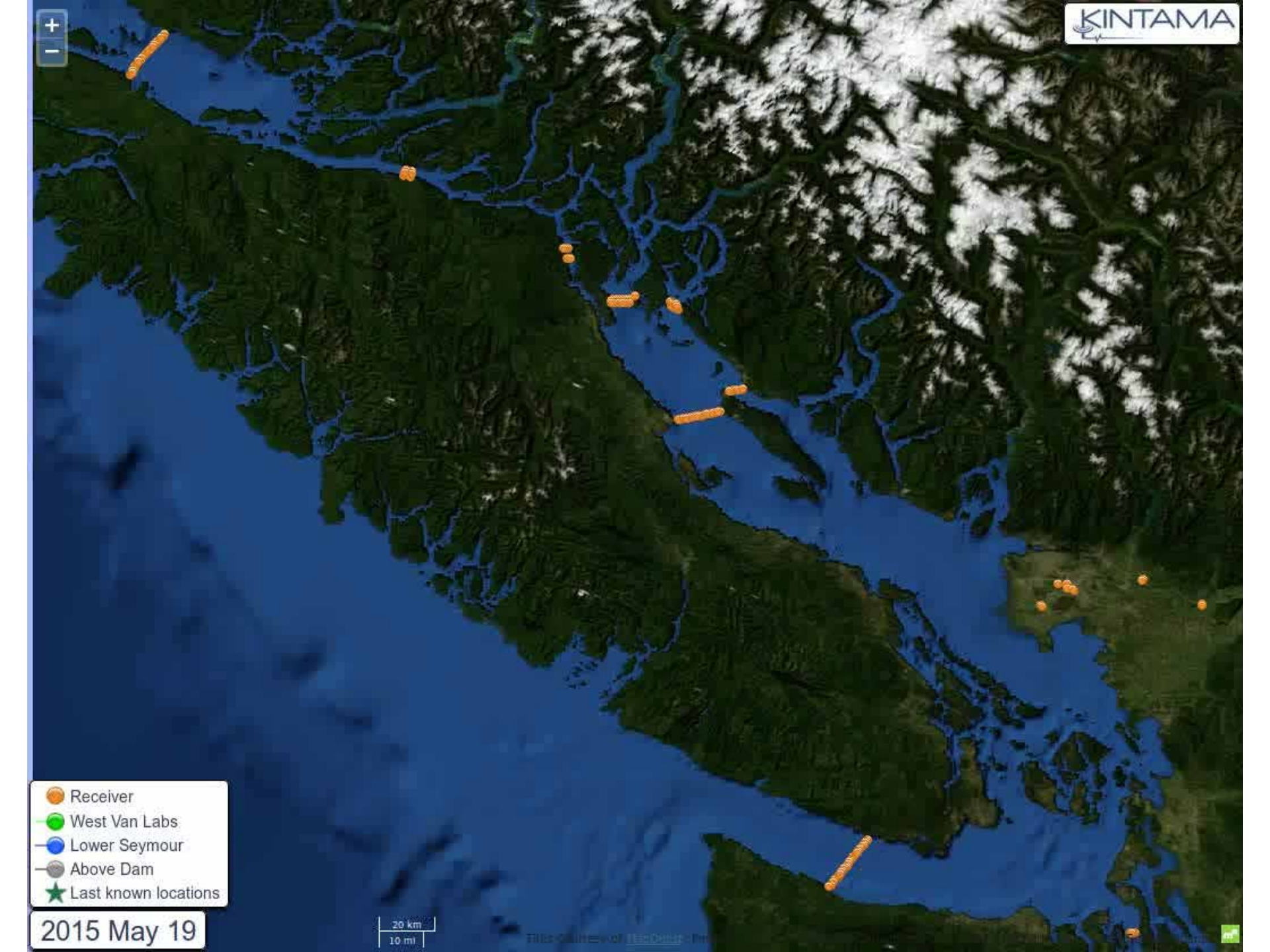

Hourly outmigration density (thousands)
0
40
160
360
640
April 20
April 25
April 30
May 5
May 10
May 15
May 20
Date of 2014


Hourly outmigration density (thousands)
0
40
160
360
640
April 20
April 25
April 30
May 5
May 10
May 15
May 20
Date of 2014


Survival Probability
0.4
0.6
0.8
1.0
apparent survivors
apparent mortalities
0
10
50
100
200
300
400
Hourly outmigration density (1,000s)


1.0
0.8
0.6
0.4
0.2
0.0
2010
0 5 10 15 20 25
2011
0 20 40 60
2012
0 50 100 150 200
2013
0 50 100 150
2014
0 10 20 30 40
2016
0 10 20 30 40
Co−migrant abundance (×10,000)


Strait of
Georgia
Pacific Ocean
Juan de Fuca Strait
Puget
Sound
The Salish Sea


KINTAMA
Receiver
West Van Labs
Lower Seymour
Above Dam
Last known locations
2015 May 19
20 km
10 mi

Routes can influence survival

Vol. 577: 131–147, 2017
https://doi.org/10.3354/meps12238

MARINE ECOLOGY PROGRESS SERIES
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Published August 18

Route-specific movements and survival during early marine migration of hatchery steelhead *Oncorhynchus mykiss* smolts in coastal British Columbia

Stephen J. Healy[1,*], Scott G. Hinch[1], Aswea D. Porter[2], Erin L. Rechisky[2], David W. Welch[2], Erika J. Eliason[3], Andrew G. Lotto[1], Nathan B. Furey[1]

PLOS ONE

Variability in Migration Routes Influences Early Marine Survival of Juvenile Salmon Smolts

Nathan B. Furey[1]*, Stephen P. Vincent[2], Scott G. Hinch[1], David W. Welch[3]

Tula

Hakai

Science on the Coastal Margin